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10/696,444

10/29/2003

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EXAMINER

MOON, SEOKYUN

ART UNIT

PAPER NUMBER

2629

NOTIFICATION DATE

DELIVERY MODE

08/06/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/696,444

Applicant(s)

MICHELITSCH ET AL.

Examiner

Seokyun Moon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. The Applicants' arguments filed on May 24, 2007 have been fully considered.

In the arguments, the Applicants pointed out, "*there is no basis in Rosenberg or in the outstanding Office Action to exclude the values  $V_1$  and  $V_2$  from the asserted damping mode*" [pg 9 lines 10-12].

Examiner respectfully disagrees.

As disclosed in claim 18 [lines 9-14] and as shown in fig. 1 of the current Application, the asserted inverted damping operation mode is merely a term defining an operation method of the haptic interface unit within a certain range of the velocity (between " $V_{min}$ " and " $V_{max}$ "), in which the interaction feedback force data are at least partly generated to be representative for an interaction feedback force which increases with a decreasing velocity and the interaction feedback force data are at least partly generated to be representative for an interaction feedback force which decreases with an increasing velocity, wherein the velocity is with respect to a respective haptic device or a pointing unit thereof. In other words, as long as the operation method of the haptic interface unit within a certain range of the velocity meets the condition that, within the range, the interaction feedback force increases with a decreasing velocity and decreases with an increasing velocity, it would be reasonable to refer the operation method within the range of the velocity as an inverted damping operation mode. Since fig. 5c of Rosenberg shows that the operation method of the haptic interface unit of Rosenberg within a range of the velocity ( $V_1 < v < V_2$ ) meets the condition that, within the range of the velocity, the interaction feedback force increases with a decreasing velocity and decreases with an increasing velocity, it would be reasonable to interpret the operation method of Rosenberg within the range of the velocity ( $V_1 < v < V_2$ ), as the asserted inverted damping operation mode.

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For the foregoing reasons, Examiner respectfully submits that the Applicants' arguments are not persuasive.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation, “an absolute force value of the interaction feedback force or a vectorial component thereof is increased in a position dependent form, to a predetermined hold force value or above, if the respective velocity or a vectorial component thereof decreases below a given threshold minimum velocity value”, disclosed in claims 18 and 35 must be shown or the feature(s) canceled from the claim(s). Specifically, in figure 1,  $V_{min}$  is defined as the threshold minimum velocity value. However, within a certain sub-range of the range of the velocity between 0 and  $V_{min}$ , the interaction feedback force does not exist. In other words, within the sub-range, the interaction feedback force is not increased to a predetermined hold force value, even though the respective velocity is below the threshold minimum velocity value.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be

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notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 18-35** are rejected under 35 U.S.C. 102(b) as being anticipated by Rosenberg (US 2002/0109668).

As to **claim 18**, Rosenberg teaches a method for operating a haptic interface unit (“*interface device*”) [par. (0012) lines 4-8 and par. (0025) lines 8-15], comprising:

receiving at least velocity information data with respect to at least one haptic device [par. (0076) lines 8-11];

generating interaction feedback force data (“*haptic effect*”) based on and in dependence of at least the velocity information data [par. (0077) lines 7-13], the interaction feedback force data being representative for an interaction feedback force to be generated by the at least one haptic device [par. (0012) lines 8-12];

transmitting the interaction feedback force data to the at least one haptic device so as to generate the interaction feedback force [fig. 1];

providing an inverted damping operation mode [fig. 5c: the mode of the haptic device operated within the range of the velocity of  $V_1 < v < V_2$ ] in which the interaction feedback force data are at least partly generated to be representative for an interaction feedback force which increases with a decreasing velocity and the interaction feedback force data are at least partly generated to be representative for an

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interaction feedback force which decreases with an increasing velocity, wherein the velocity is with respect to a respective haptic device or a pointing unit thereof; and

providing a holding force mode [fig. 5c: the mode of the haptic device operated within the range of the velocity of  $0 < v < V_1$ ] in which an absolute force value of the interaction feedback force or a vectorial component thereof is increased in a position dependent form [par. (0052)] to a predetermined hold force value or above (“I”), if the respective velocity or a vectorial component thereof decreases below a given threshold minimum velocity value (“ $V_1$ ”), the predetermined hold force value being larger than the interaction feedback force within the inverted damping operation mode.

As to **claim 19**, Rosenberg teaches the method comprising decreasing the absolute force value of the interaction feedback force or a vectorial component thereof to zero, if the respective velocity or a vectorial component thereof increases above a given threshold maximum velocity value [claim 26].

As to **claim 20**, Rosenberg teaches the method comprising performing the inverted damping operation mode with respect to vectorial components of the interaction feedback force and the velocity [par. (0075)].

As to **claim 21**, Rosenberg teaches the method comprising performing the inverted damping operation mode [fig. 5c: the mode of the haptic device operated within the range of the velocity of  $0 < v < V_1$ ] with respect to vectorial components of the interaction feedback force and the velocity in an independent manner (only the scale of the velocity matters to determine the magnitude of the force).

As to **claim 22**, Rosenberg [fig. 5c] teaches the method comprising generating the interaction feedback force data to describe the interaction feedback force as a damping force, so as to generate an interaction feedback force acting against a given velocity or a vectorial component thereof [par. (0079) lines 11-18].

As to **claim 23**, Rosenberg [fig. 5c] teaches the method comprising generating the interaction feedback force data to describe the interaction feedback force as a damping force, so as to generate an

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interaction feedback force acting against a given velocity or a vectorial component thereof as a counterforce or a frictional force [par. (0079) lines 11-18].

As to **claim 24**, Rosenberg [fig. 5c] teaches the method comprising generating the interaction feedback force data to describe the interaction feedback force or a vertical component thereof as having an absolute force value  $f$  being, at least piecewise, a positive monotonically decreasing function  $g$  of the respective velocity  $v$  or of a vectorial component thereof to fulfill the relation  $f(v) \propto g(v)$ .

As to **claim 25**, Rosenberg [fig. 5c] teaches the method comprising selecting the at least piecewise positive and monotonically decreasing function  $g$  to fulfill at least piecewise the relation  $g(v) = 1 / h(v)$  [claim 27], where  $h$  is at least piecewise a positive and monotonically increasing function of the velocity  $v$  or of a vectorial component thereof.

As to **claim 26**, Rosenberg [fig. 5c] teaches the method further comprising selecting the at least piecewise positive and monotonically decreasing function  $g$  to fulfill at least piecewise the relation  $g(v) = 1 / |v|$  [claim 27], where  $v$  denotes a velocity or vectorial component thereof.

As to **claim 27**, Rosenberg [fig. 5a] teaches the method comprising selecting the at least piecewise positive and monotonically decreasing function  $g$  to be at least piecewise one of a step function, a staircase function and a liner function.

As to **claim 28**, Rosenberg [par. (0052)] teaches the method comprising generating the interaction feedback force data to describe the interaction feedback force as a force which is at least piecewise dependent on a scalar position or a vector position.

As to **claim 29**, Rosenberg [par. (0052)] teaches the method comprising selecting the scalar position or vector position to describe a position of a respective haptic device or the pointing unit.

As to **claim 30**, Rosenberg [par. (0052)] teaches the method comprising selecting the scalar position or vector position to describe a position of a corresponding abstract pointing means within a data structure.

As to **claim 31**, Rosenberg [par. (0052)] teaches the method comprising selecting the scalar position or vector position to describe a position of a corresponding abstract pointing means within a graphical user interface.

As to **claim 32**, Rosenberg teaches a haptic interface unit comprising means for performing the disclosed operating method and the steps thereof [abstract].

As to **claim 33**, Rosenberg teaches a computer program product, comprising computer program means adapted to perform the method and the steps for operating a haptic interface unit when it is executed on a computer or a digital signal processing means [par. (0027) lines 1-8].

As to **claim 34**, Rosenberg teaches a computer readable storage medium, comprising the disclosed computer program product [par. (0048)].

As to **claim 35**, Rosenberg teaches a method for operating a haptic interface unit ("*interface device*") [par. (0012) lines 4-8 and par. (0025) lines 8-15], comprising:

receiving at least velocity information data with respect to at least one haptic device [par. (0076) lines 8-11];

generating interaction feedback force data ("*haptic effect*") based on and in dependence of at least the velocity information data [par. (0077) lines 7-13], the interaction feedback force data being representative for an interaction feedback force to be generated by the at least one haptic device [par. (0012) lines 8-12];

transmitting the interaction feedback force data to the at least one haptic device so as to generate the interaction feedback force [fig. 1];

providing an inverted damping operation mode [figs. 5b and 5c: the mode of the haptic device operated within the range of the velocity of  $V_1 < v < V_2$ ] in which the interaction feedback force data are at least partly generated to be representative for an interaction feedback force which increases with a decreasing velocity and the interaction feedback force data are at least partly generated to be



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representative for an interaction feedback force which decreases with an increasing velocity, wherein the velocity is with respect to a respective haptic device or a pointing unit thereof; and

providing a holding force mode [figs. 5b and 5c: the mode of the haptic device operated within the range of the velocity of  $0 < v < V_1$ ] in which an absolute force value of the interaction feedback force or a vectorial component thereof is increased in a position dependent form, in a step fashion [par. (0080) lines 12-16], to a predetermined hold force value or above, if the respective velocity or a vectorial component thereof decreases below a given threshold minimum velocity value (" $V_l$ "), the predetermined hold force value being larger than the interaction feedback force within the inverted damping operation mode.

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

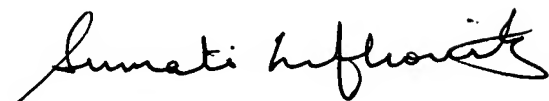
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (572) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 30, 2007

- s.m.



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